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RENARDUS: PROJECT DELIVERABLE

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Abstract	<p>This report consists of three parts. Section 1 is a revised version of D3.2 <i>Documentation of the Service Organisation (initial version)</i>. It outlines an organisational model for the Renardus Consortium, which concentrates on the tasks to be performed to guarantee continued service provision and maintenance. These tasks are described in detail and are ascribed to either the Management Group, the Service Provision and Maintenance Group or the PR Group, those three organisational bodies together making up the 'Renardus Core Organisation', responsible for day-to-day management of the service. An attempt is made to identify the tasks that are essential and should therefore be part of a 'lightweight' organisational model and additional tasks that could be performed when more funding is available. Section 2 outlines the model of a membership consortium to formalise collaboration and proposes draft bylaws for the Renardus Consortium. It also gives a general overview of expected costs and revenues. The third section was first planned as a separate WP8 deliverable, D8.3: <i>Sustainability of a European broker service</i>. It describes the potential problems and challenges that the Renardus Consortium may have to</p>
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Keywords	face relating to major business issues. Organisational infrastructure, Renardus Broker Service, Renardus Consortium, management, maintenance, service provision, business plan, cost model.
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PART II - MANAGEMENT OVERVIEW

DOCUMENT CONTROL

<i>Issue</i>	<i>Date of Issue</i>	<i>Comments</i>
0.1	13 March 2002	Draft outline - various sections to be contributed by partners indicated; defines issues that need wider discussion/agreement.
0.2	1 May 2002	Second draft.
0.3	29 May 2002	Third draft. Comments and recommendations from D5.3 <i>Verification report</i> added.
0.4	12 June 2002	Final draft, for last round of comments.
1.0	24 June 2002	Final version.

EXECUTIVE SUMMARY

Section 1 of this report is a revised version of D3.2 *Documentation of the Service Organisation (initial version)*. In D3.2 an organisational model for the Renardus Consortium was outlined, which concentrated on the tasks to be performed to guarantee continued service provision and maintenance. These tasks were described in some detail and were ascribed to either the Management Group, the Service Provision and Maintenance Group or the PR Group, those three organisational bodies together making up the 'Renardus Core Organisation', responsible for day-to-day management of the service. The following tasks are specified and described in detail for each of the three groups:

1. Management group

- I. Consortium Administration
- II. Policy making / business strategies
- III. Service Provision / Inclusion of new gateways
- IV. Financial management
- V. Legal and rights managements

2. Service Provision and Maintenance Group

- I. Maintenance of technical infrastructure and technical support
- II. Innovation and development
- III. Maintenance of the datamodel
- IV. Maintenance of the mapping information

3. PR Group

- I. Maintenance of the service website (Information Pages and Admin Section)
- II. Promotion and marketing of the service / dissemination
- III. User support/helpdesk (end user)
- IV. Support for Data Providers and potential new Data Providers
- V. Gathering of user feedback and statistics
- VI. Facilitate communication

Also the tasks to be carried out at the level of the individual subject gateways are specified. These are:

I. Application and assessment procedure

II. Organisational and administrative tasks

III. Service Provision and Maintenance tasks

IV. Dissemination of information, concertation, promotion and support

An attempt is made to identify the tasks that are essential and should therefore be part of a 'lightweight' organisational model. In this case the various groups that make up the Renardus Consortium would carry out only (or mostly) tasks of which the costs can be covered as much as possible by existing budgets for tasks that are performed anyway in other contexts, for instance the running of the local subject gateway. An extended - and in some cases also an intermediate - level is defined that describes tasks that are not essential to keep the service running but should be carried out as soon as a more robust organisational model is in place and sufficient funding is available.

Section 2 describes a model to formalise co-operation between partners in the form of a Renardus Consortium. It includes a draft of bylaws for the Consortium. At the time this report is finalised, these bylaws have not been agreed on by the project partners. They will be discussed at the final project meeting in Paris (27-28 June 2002) and may need to be amended before they can be agreed on. A Consortium Agreement still has to be drawn up in line with those bylaws. A cost model is also outlined, trying to define which types of costs will have to be covered to be able to run the service. (Meeting the costs of complying with the Renardus requirements will be the responsibility of the data providers and is not covered here). It is assumed that in the short term there will be no structural or project funding, that the management structure will be small ('lightweight') and that consortium members will be prepared to invest their own time and money in helping the working of the consortium. The main costs will be funding participation in the Management Group and in running the Renardus Service. In the longer term, it will be necessary to investigate how the management and PR function of Renardus could be more permanently funded.

In the short term, the highest level of expenditure is likely to be staff costs. In order to provide a basic service, it has been estimated that the staffing required for the pilot (including the integration of some new services) together with support for associated systems and tools would total 0.5 FTE *per annum*. This would include a 0.25 FTE technical post, for server maintenance, the integration of new services and technical support. It would also include a 0.25 FTE information specialist who would provide support for participating services on mapping data structures to the Renardus data model and classification mapping. The costs of providing 0.5 FTE would vary depending upon which EU Member State the Renardus service was based and the level of overhead included, but may be assumed to be between €25.000 and €40.000 per year. An additional €1.500 per year would need to be allocated for backup media costs and in the longer-term the cost of a replacement server would need to be also factored in.

Other potential costs that need to be considered are the costs of the various licences that Renardus needs to function well, chiefly for the use of software (from Index Data and the University of Regensburg) and the DDC (from OCLC Forest Press). The project has already negotiated the use of DDC on a research licence beyond the end of the project phase of Renardus, but future developments may require negotiation on commercial terms. There may also be legal costs associated with negotiating these licenses on behalf of the Renardus consortium.

Other management costs are harder to quantify. There may be a need for legal advice in drawing up a consortium agreement. Such agreements typically have information on members' rights, obligations and liabilities, on organisation and meeting procedure, etc. The consortium would have to be established under the legal system of one of the EU Member States, and this process could be a lengthy one.

Section 3 of this report was originally planned as a separate deliverable: D8.3 *Sustainability of a European Broker Service*. Both D3.4 and D8.3 address exploitation issues that are closely related and interdependent, so we decided to integrate the two reports into one. This section looks at potential revenue streams, alternative sources of support, costs and legal issues and tries to pinpoint the problems and challenges of keeping the service alive after the project period.

At the time of writing of this report negotiations with organisations interested in various forms of collaboration and support were still ongoing but had not yet resulted in new partnerships or guaranteed new revenue streams. Even when an agreement is reached with new strategic partners, there will be a gap between the end of the project and the formalising of any new partnerships. The first half year after the project should be focused on

keeping the service going at the lightweight level as defined in section 1 while at the same time continuing negotiations for project funding and structural support and partnerships, either those that have been initiated during the last months of the project or talks with new potential partners.

SCOPE STATEMENT

At a project meeting on exploitation issues held in Bristol (February 2002) it was decided to combine the following two deliverables into one: D3.4 *Documentation of the service organisation (final version)* and D8.3 *Sustainability of a European Broker Service*, the first one a public deliverable, the second one internal. The resulting document outlines the most likely scenario for continued co-operation, based on a membership Consortium.

The organisational model presented in D3.2 has been evaluated in WP5. The results have been reported in D5.3 *Verification report and recommendations for revision of procedure for management, maintenance and availability of Renardus*. These recommendations have been taken into account here as far as possible. The general outcome of the verification process was that "D3.2 offers a good basis for the operational Renardus Service."

This combined deliverable is the final one for WP8. In WP3 one more deliverable will follow which will in part build on the current document. D3.5, the *Technical Implementation Plan*, will include an 'Exploitation Plan for the Renardus Broker Service'. This section will build on the model outlined here. It will describe the organisational model, the actual situation at the end of the project, planned developments and future strategies and the underlying business plan as well as a promotional plan for the next year.

PART III - DELIVERABLE CONTENT

INTRODUCTION

In D3.2 an organisational model for the Renardus Consortium was outlined, which concentrated on the tasks to be performed to guarantee continued service provision and maintenance. The tasks were described in some detail and were ascribed to three different organisational bodies: the Management Group, the Service Provision and Maintenance Group and the PR-Group. This structure is on the one hand fairly detailed as regards the description of tasks, but still very abstract in that it does not describe the way the collaboration between the parties involved is formalised.

This document proposes to formalise collaboration in the form of a Membership Consortium. At the time of writing of this deliverable this seems by far the most viable option and an attempt is made to develop this scenario in such a way that it can actually form a sound basis for post-project collaboration. This means that as far as possible also the necessary formal documents such as bylaws and agreements have been drawn up, although none of those have been agreed on formally by the time this report and D3.5 are finalised. Unfortunately the slow and difficult consensus building process has left some work on exploitation issues still to be done after the project's end. This work will be discussed and planned on the final project meeting in Paris but will itself fall outside the scope of the Renardus project.

The organisational model presented in D3.2 has been evaluated by WP5. The results have been reported in D5.3 *Verification report and recommendations for revision of procedure for management, maintenance and availability of Renardus*. These recommendations have been taken into account here as far as possible. The general outcome of the verification process was that "D3.2 offers a good basis for the operational Renardus Service."

The last section of this document explores the sustainability of a European Broker Service. It describes the problems and challenges which will influence continued exploitation. It assesses the risks and outlines possible future strategies the Renardus Consortium could employ to meet the challenges described and to guarantee sustainability in the longer term.

GLOSSARY

Broker Service

An intermediary service created by a third party on the basis of the resources selected and described by individual subject gateways.

Consortium Agreement

A document which outlines the terms and conditions of membership of the Renardus Consortium and which will be signed by all members.

Content Provider

A service which provides access not only to metadata but to the full content of the information resource.

Data Provider

A service, for instance a Subject Information Gateway or a Broker Service which makes its metadata available to the Renardus Broker Service or for other collaborative activities carried out by member organisations of the Renardus Consortium (e.g. metadata sharing).

Management Group (MG)

A group consisting of representatives from Renardus member organisations that is responsible for overall management, policy and decision making. Its main responsibility is to take initiatives to ensure the sustainability and further development of the service in the longer term.

PR Group (PRG)

A group consisting of representatives from Renardus member organisations that is responsible for all activities relating to dissemination of information, concertation, promotion and support. Its main responsibility is that the Renardus Service is known to its target audiences, end users as well as potential participants, and that all the necessary information is available.

Quality Controlled Subject Gateway

Service that applies a documented set of quality measures to support systematic resource discovery.

Renardus Broker Service

A service available on the internet which gives integrated access to the resource descriptions of the participating data providers.

Renardus Consortium (RC)

A Consortium of organisations involved in the exploitation of the Renardus Broker Service. The Renardus Consortium consists of any number of organisations: these can be data providers as well as organisations providing for instance technical or commercial expertise. All, some (or even only one) participating organisation(s) can provide staff effort for participation in the Renardus Core Organisation consisting of a Management Group, a Service Provision and Maintenance Group and a PR Group.

Renardus Core Organisation

The three bodies that together are responsible for the overall organisation of the Renardus Consortium and the smooth exploitation and development of the Renardus Broker Service. The Renardus Core Organisation consists of a Management Group, a Service Provision and Maintenance Group, and a PR group. The staff effort for these bodies can be provided by all, some (or even one) of the organisations in the Consortium, or can - depending on the funding model - be hired especially by the Renardus Consortium.

Resource Discovery Broker Service

See: Broker Service

Service Provider

The term used instead of Data Provider in older versions of this document. At the meeting in Lund in April 2002, Renardus partners agreed on the term Data Provider for organisations making their metadata available to the Renardus Broker Service or for other collaborative activities carried out by the Renardus Consortium (such as metadata sharing).

Service Provision and Maintenance Group (SPMG)

A group consisting of representatives from Renardus member organisations that is responsible for the service provision and the (technical) maintenance of the service. The Service Provision and Maintenance Group should ensure that the service is available to users at all times and that its performance is according to specified standards.

Subject Gateway

See: Quality Controlled Subject Gateway.

1 AN ORGANISATIONAL MODEL FOR THE RENARDUS BROKER SERVICE

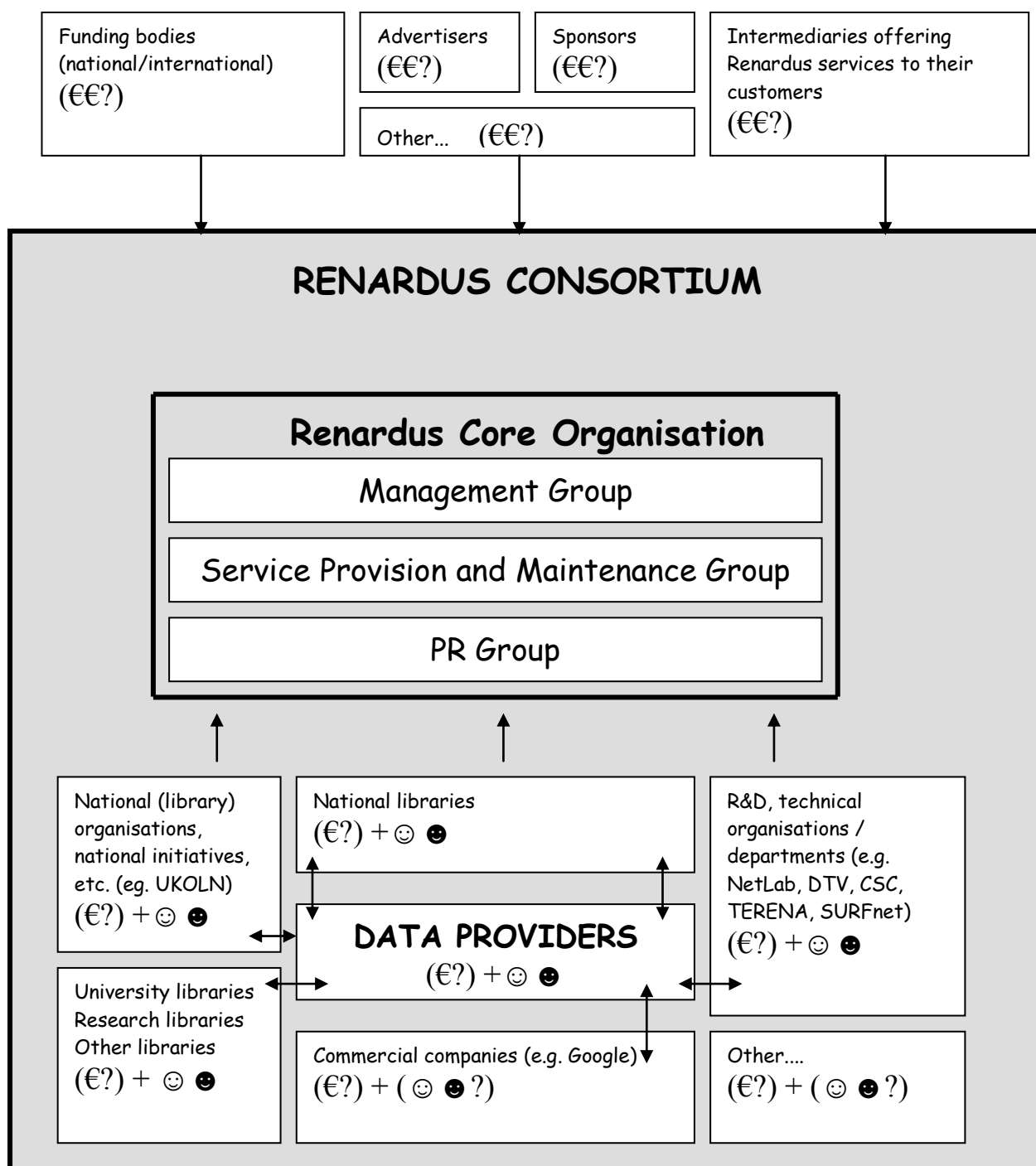
1.1 Outline for an organisational framework

In D3.2 an outline for an organisational model was proposed, shown overleaf, which takes into account the (possible) relations between various organisations and the Renardus Consortium. In a distributed organisational model (some of the) organisations participating in the Renardus Consortium put staff effort in one or more of the three groups of which the Renardus Core Organisation consists - this is shown in the diagram. In a centralised organisational model the three groups are embedded in one organisation only, with staff of that organisation only making up the Management Group, the Service Provision and Maintenance Group and the PR-group. Hybrid models are also possible.

The arrows between the Data Providers (shown as a separate box in the diagram, because they can also be autonomous) and the other organisations indicates that Data Providers (Subject Gateways, such as DutchESS, broker services such as RDN and FVL, ranges of subject guides such as those provided by SUB, Göttingen) can have various relations with any of these organisations. In other words Data Providers can in theory or current practice be autonomous or be linked to any of the (types of) organisation in the other boxes, e.g. university libraries, national libraries, various library organisations, commercial companies, etc. The latter organisations can be members of the Renardus Consortium as representatives of a Data Provider and/or contributing other (e.g. technical) expertise.

The diagram is followed by a detailed description of the tasks to be carried out by: the Management Group (1.2), The Service Provision and Maintenance Group (1.3), the PR-group (1.4) and the Data Providers (1.5). At the minimum - or 'lightweight' - level, the tasks identified are those which will have to be carried out after the project, when Renardus will carry on with no or minimal funding and therefore needs to limit its organisational structure to absolute essentials. In this case the various groups that make up the Renardus Consortium would carry out only (or mostly) tasks of which the costs can be covered as much as possible by existing budgets for tasks that are performed anyway in other contexts, for instance the running of the local subject gateway. An extended - and in some cases also an intermediate - level is defined that describes tasks that are not essential to keep the service running but should be carried out as soon as a more robust organisational model is in place and sufficient funding is available. Note that the intermediate and extended levels are *extensions* to the core tasks specified as the lightweight level that have to be carried out in all cases.

The verification report warns that due to lack of funding even at the lightweight level tasks may have to be prioritised. At a very minimal level there may be just one core group, consisting of one or two people, specifically designated to take on the essential tasks of all three groups (management, maintenance and PR).



€ - indicates money provided

☺ - indicates possible contributions in the form of (regular) staff effort within the own organisation/service

☹ - indicates possible participation in Management Group, Service Provision and Maintenance Group or PR Group.

1.2 Tasks to be performed by the Management Group

In this section the tasks in the following areas will be specified:

I. Consortium Administration

II. Policy making / business strategies

III. Service Provision / Inclusion of new gateways

IV. Financial management

V. Legal and rights management

I. Consortium Administration

These are all the organisational and administrative tasks that have to do with the actual functioning of the Consortium, to be undertaken by the Management Group (MG). Their goal is to ensure a smooth organisation, to ensure efficient communication between partners, to initiate and co-ordinate the consensus building process that will lead to new initiatives to ensure sustainability of the service in the longer term. The MG should also be able to act as the formal representative of the Renardus Consortium in contacts with third parties. It is therefore vital that the Management Group has the trust of the Renardus Consortium and can act on its behalf, thereby following procedures for decision making that have been agreed on by all.

Lightweight level

- ***Organisation of meetings***

In a lightweight model there may be no or very restricted budget for face-to-face meetings, and meetings will have to be held only when strictly necessary or when they can for instance be held in the context of a conference or other event where the people wanting to meet will attend anyway. Also virtual meetings, such as telephone conferences, web conferences etc. could be used. Members of the Renardus Consortium will have to commit to providing effort and travel funding for meetings: under a lightweight model, subject to the details of a Consortium Agreement, at least one annual general meeting will be a requirement (see section 2).

- ***Develop procedures for consensus building and decision making processes, including voting procedures***

To enable the MG to act with authority on behalf of the Consortium as a whole a priority is to develop procedures for the consensus building process. These procedures should specify how decisions are made, how the status of decisions is determined, what organisations can/should do if they don't agree with a decision taken by majority vote which has implications for their own organisations. Also the voting procedure should be specified: how/when to decide on a vote, in which cases votes should be unanimous, and when a majority is sufficient, who has the right to vote in which circumstances, whether to have the option to exert a veto right for certain members and if so, under which conditions, etc. The procedures should be agreed on by all Consortium members. Those procedures should be made available to Consortium Members via the appropriate channels.

In a lightweight model this task should as far as possible be carried out with priority, because lack of such a decision making infrastructure will hamper the Consortium as a whole in efficiently following up chances and opportunities for future development of the service. *Preferably they will be developed before the end of the project.*

- ***Reporting***

The MG should keep the Consortium up to date of its activities via the appropriate channels (discussion lists, reports etc.) In a lightweight model formal reporting should be kept to a minimum, but keeping the Consortium up to date on activities via a discussion list is a fairly low cost/low effort task.

The verification report recommends that the MG and PR-group collaborate on developing a reporting-plan.

- ***Appoint special working groups and co-ordinate and monitor their work***

For special tasks the Management Group may appoint special working groups consisting of representatives of partner organisations that have the necessary expertise for that task, for instance writing (part of) a project proposal, carrying out analyses, carrying out surveys or research tasks. The Management Group should co-ordinate and monitor this work. The verification report recommends to hire external expertise - depending on available budget - when the necessary expertise can't be found amongst Consortium Members.

- ***Develop an annual activity-plan***

The MG should develop an annual activity plan, in which activities for the coming year are prioritised.

Extended level

- ***Organisation of meetings***

When sufficient funding is available regular meetings can be organised to discuss progress, develop new ideas for development and business strategies etc. The MG will decide on the agenda and attendance of the meetings, but any Consortium member can request a meeting, subject to the terms of a Consortium Agreement and associated bylaws.

- ***Update procedures for consensus building and decision making process, including voting procedures***

When the organisation moves from a lightweight model to a more robust organisational structure, especially when new parties are involved (e.g. a commercial partner), the procedures for decision making may need to be revised and updated.

- ***Reporting***

When the organisation changes, formal forms of reporting may be obligatory, for instance to give account of activities and policies to commercial partners, funding bodies etc. The MG should develop strategies and procedures for reporting in collaboration with the PR group: there should be some guidelines on which reports are necessary, for which target audiences, with which purpose and how frequently they should be made. The PR group should be involved in making reports available to their respective audiences via the appropriate channels.

II. Policy making and business strategies

Lightweight level

- ***Set the agenda and priorities for development and updates of business plan and development of main business strategies***

The MG should ensure ongoing discussion and development of ideas in the Consortium as a whole and it should set the agenda and determine priorities, bring ideas up for discussion and guard and co-ordinate the consensus building process. Setting of priorities should be motivated by the position statement developed at the Helsinki meeting (March 2001, described in D3.1). If necessary the MG could put up a proposal for adjustment of the position statement. In case of a lightweight model highest priority should be to move in the direction of a more robust service organisation, based on a sound business plan which will ensure expansion and further development of the service.

- ***Identify strategic partners and negotiate with them on behalf of the Renardus Consortium***

The primary task of the Management Group in a lightweight model is to carry the service safely over the 'gap' between project funding and a business model that will guarantee survival in the longer term. (Best case scenario of course being that there is no gap at all because structural or project funding is obtained in time for the period directly after the project end. But at the time the final version of this document is produced, that does not seem likely). The Management Group should strive to replace the lightweight model with a more robust organisational model as soon as possible and should therefore focus its attention on identifying strategic partners and carrying on negotiations with them to explore the possibilities for future collaboration and/or funding opportunities. Parties may be: national/international funding bodies,

national/international/supranational organisations, national libraries, university and research libraries, Data Providers, commercial organisations etc.

- **Write/revise a business plan**

As soon as a strategy has been developed for exploitation of Renardus in the longer term, the Management Group should write a business plan for the service and negotiate funding of the service with the relevant parties. The business plan should amongst others include the terms and conditions of availability of the Renardus Service, an estimate of costs and revenues, a procedure for dividing and/or re-investing any revenues, promotion strategies, etc. Most of this work will be carried out during the project in WP8 and the result will be integrated in D3.5, but periodic updating/revision will be necessary after the project period.

- **Explore opportunities for follow-up projects**

The Renardus Consortium itself or a number of organisations which are part of the RC may be interested in carrying out new projects, funded by the EU or other funding bodies. The MG should explore opportunities together with interested parties amongst its member organisations and if necessary co-ordinate and/or monitor writing of the project proposal

Lightweight/intermediate level

- **Take initiatives to form alliances with new Data Providers, negotiate terms of co-operation**

(In a lightweight model the Consortium may not be able to facilitate the addition of new gateways to the service, therefore this task is described as being part of lightweight or intermediate level of service organisation). When inclusion of new gateways is specified as one of the strategic goals of the service, initiatives have to be taken to locate potential candidates. This will be partly a task of the PR-group (see below), but the Management Group will have to decide on general strategies.

III. Service Provision / Inclusion of new gateways

Lightweight/Intermediate level

In a lightweight model the Consortium may not be able to facilitate the addition of new gateways to the service, or only of gateways which need little or no support. This task is therefore defined as belonging either to the lightweight or the intermediate level. The verification report suggests that "regardless of resources, the service should always be ready to receive new gateways, at least gateways which need little or no support. This is especially important for the expansion of the service (expansion was one of the wishes expressed in the user feedback), but the matter is important also in order to get financiers and sponsors."

- **Draw up and maintain documents and agreements for the inclusion of new Data Providers**

Guidelines for inclusion of new partners will already have been developed during the project (see: *Guidelines for participant services*, available from the 'About us' pages of the service but later decisions by the Consortium may necessitate updating of those documents.

- **Supervising the process of including new gateways in the service, by carrying out the tasks described in the 'Application Procedure for new gateways' (see: *Guidelines for participant services*)**

- Assess application, decide to accept or reject new Data Provider
- Make recommendation to Renardus Consortium members
- After voting by Renardus Consortium members, let data provider know about decision
- Negotiate and sign contract between Consortium and new Data Provider
- Development of time schedule for integration of new service

The application procedure can be tested and, if necessary, adapted when new gateways are linked to Renardus.

- **Supervising the process of including new members in the Renardus Consortium**

Apart from new data providers other parties may at some point wish to become members of the Renardus Consortium. The MG will negotiate with those parties on behalf of the Renardus Consortium, make a recommendation to the Renardus Consortium, and - after the new member is accepted - make sure the necessary agreements are signed etc.

- ***Quality assurance procedures***

The quality of the overall service provision is for a large part dependent on the quality of the participating gateways. This in turn concerns various aspects of the service: the quality of the selected resources, the quality of the metadata and the quality of the technical provision (normalisation process, server performance etc.). In a lightweight model it will probably not be possible to carry out extensive quality monitoring, but it will still be necessary to have a policy in place to deal with services that prove to be not up to standards in either data quality or performance level. The verification report also mentions the risk that uncertainty about the future of the service may influence the functioning and quality of the service.

Extended level

- ***Quality assurance procedures***

Although to ensure the quality of their own service is the responsibility of the individual gateways, the MG should develop guidelines and procedures to monitor the quality of data and service performance. Also it should be agreed on how to deal with gateways that do (temporarily or structurally) not match the desired quality level.

- ***Adjust policies on the basis of analysis of performance and usage data gathered by the Service Provision and Maintenance group and the PR Group***

The Management Group will analyse statistics and usage data gathered and reported by the PR-group and Service Provision and Maintenance Group. The MG will report back to the Consortium about their findings and propose for instance adjustments of the service provision, new activities, adjustment of business and/or marketing strategies on the basis of those analyses when necessary.

- ***Develop collection management policy***

Once collaboration in Renardus has a firm basis and continuity in the longer term seems guaranteed, a next step would be to develop a common collection management policy whereby the individual services could concentrate on certain disciplines/subject areas and could trust their fellow subject gateways to provide the records for other areas. Tools for metadata sharing could be used to enhance metadata for the own user group of the services, for instance with keywords or descriptions in other languages. A task of the MG would be to initiate and co-ordinate discussion about a common Renardus collection management policy and to develop a model for it. If such a policy were to be implemented the MG should monitor its functioning.

IV. Financial management

The MG should monitor the costs of running of the Renardus Service, make sure necessary payments are made and divide any incoming sources of money to the relevant organisations according to previously made agreements.

Lightweight level

- ***Maintain periodical overviews and report on the costs of the service***

For future negotiations with third parties it is important that it is visible what running of the Renardus Service actually costs, including more or less 'hidden' costs of server use and efforts of permanent staff. The MG should periodically report on the costs of running the service by gathering data about their costs and efforts from all partners and periodically adapt current financial planning and budgets on the basis of real costs (cf. below: draw up yearly budgets). Preferably there should be an operating budget even under the lightweight service, even if that specifies only the minimum level of effort and funding required for each participant in the Consortium.

- ***Develop a proposal for division of costs and revenues***

On the basis of the above mentioned overviews of costs and revenues the MG should develop a cost model which describes how to share costs amongst member organisations and on how to use and divide any revenues. This proposal should be discussed and agreed on by the Consortium.

- ***Carry out payments on behalf of the Renardus Consortium***

The MG will make sure invoices from member organisations (for instance for purchase of hardware for the Renardus Service) or from third parties (for instance for the continuation of licenses) are paid on time according to previously agreed procedures.

- ***Carry out activities to obtain funding***

In a lightweight situation the MG should set high priority on trying to obtain new funding to safeguard further development and maintenance of the service. It should therefore identify organisations that might be willing to invest in the service, on a structural level or within a project context and carry out negotiations on behalf of the Consortium. (*These activities have been started before the end of the project by the temporary Management Group*).

Funding could be obtained in the partners' own countries from local/national funding bodies. Individual Consortium Members may carry out these negotiations in their own country on behalf of the Renardus Consortium. If these funding bodies are not likely to support a European service, they may be willing to fund small scale projects or activities in which the partner is involved and which may benefit the service indirectly, or it may for instance enable a partner organisation to host a workshop or other activity.

Extended level

- ***Financial planning, (annual) budgets, financial administration and financial reporting***

With a more robust organisational model in place and a business plan that underpins (non-)commercial exploitation of the service, including generation of external funding streams/revenues, the Consortium will have to keep account of the financial situation. A yearly budget will have to be drawn up, a financial administration maintained and analyses and reports have to be provided to the Consortium and third parties with a financial interest in Renardus.

V. Legal and rights management

Lightweight level

- ***Act as representative of the Renardus Consortium, negotiate contracts***

The MG should act as formal representative of the Renardus Consortium. It should have the authority to negotiate contracts on the Consortium's behalf. Whether the MG will actually have the authority to *sign* contracts on the Consortium's behalf will depend on the Consortium's and the MG's legal status.

One option would be that the Consortium members sign a mandate which gives the MG or one organisation the authority to sign documents on the Consortium's behalf.

- ***Maintaining current licenses: e.g. DDC (OCLC Forest Press) / Indexdata***

In a lightweight model it is unlikely that any development will take place, and the system will probably continue with the systems/software for which licenses have been obtained during the project phase. The MG should make sure those licences are continued/renewed when necessary and should make sure that Consortium Members and Data Providers are aware of the terms and conditions of those licenses.

- ***Responsibility/ownership of the Renardus domain name(s)***

Renardus has currently registered three domain names: renardus.org, renardus.net and renardus.com. The MG will deal with any issues resulting from the ownership of those domain names, decide about their use and about acquiring other domains in future if necessary.

- ***Obtaining legal advice***

When negotiating contracts with third parties the Renardus Consortium may want to obtain legal advice. In a lightweight model, this may have to be restricted to advice from in house legal specialists in the member organisations when available.

Extended level

- ***Responsibility for the documents relating to the Consortium organisation***

This includes all official documents and agreements which specify the aims and objectives of the Consortium, the terms and conditions of collaboration and the rights and obligations of member organisations, e.g. the Consortium Agreement, Bylaws, mission statement etc.

- ***Negotiating licenses***

When Renardus is exploited as a (commercial) service with sufficient funding for further technical development it may become necessary to negotiate new/additional licenses that may be necessary due to development/changes to the Renardus System, e.g. classification schemes and/or thesauri, software, additional domain names. Also existing licenses may have to be renegotiated because a change in the terms and conditions of use is needed.

- ***Obtaining legal advice***

When negotiating contracts with third parties the Renardus Consortium may want to obtain legal advice. When (more) funding is available external advice may be obtained in addition to advice from in house specialists.

Performance of Management tasks during the remainder of the project

At a project meeting in Lyngby (Denmark) in November 2001 it was decided to establish a temporary Management Group as defined in this document. The organisations that want to participate in this group will have to commit a minimum of funding and effort for tasks that are additional to the Renardus project plan and can't be claimed as project effort. The tasks of this temporary Management Group are based on those defined above, but are for the remainder of the project period restricted to those which have the highest priority for the continuation of the service after the project. Priority tasks for the Management Group (and potential methods for achieving them) are:

- Identify and contact key potential Consortium members and Renardus partners, other organisations or projects with shared development interests (which may provide sponsorship or use Renardus as a development testbed), for instance: OCLC, PICA, TERENA, TEL project, WSE (ILRT Bristol), RDN (UK), Australian Subject Gateways Forum (ASGF), search engines or other commercial companies;
- (In combination with the first task): Explore opportunities for funding the service beyond the project phase;
- Develop procedures for consensus building and decision making processes, including voting procedures. If a group of people is talking with others on behalf of Renardus, we need to have some agreement on how decisions are made and all Renardus partners need feedback and an opportunity to input on negotiations;
- Engage in license negotiations to ensure continuation of the necessary licenses after the project period;
- Determine procedures for maintaining hardware and software after the project to ensure continuation of service provision.

In D5.3 (verification report) the following tasks have been added to the above as needing attention before the end of the project.

- Consortium and data provider agreements
- Writing a business plan, financial plan, marketing plan and reporting plan
- Deciding on the minimum requirements for availability (for instance: is around-the-clock availability feasible?)

The verification report also recommends that the MG's authority to negotiate and sign contracts and agreements on the Consortium's behalf is arranged before the end of the project and that the possibility is researched that participating organisations sign a mandate to provide the MG or one organisation with the necessary authority to act and sign agreements on the Consortium's behalf. Legal advice should be obtained if necessary.

At the time of writing of this report the temporary MG is at work on (some of) the above mentioned tasks. The results of the work done by the MG in the last months of the project will be evaluated and the membership of the MG will be reviewed at the final project meeting (Paris, 27-28 June 2002).

1.3 Tasks to be performed by the Service Provision and Maintenance Group

Tasks in the following areas will be specified in this section:

I. Maintenance of technical infrastructure and technical support

II. Innovation and development

III. Maintenance of the datamodel

IV. Maintenance of the mapping information

I. Maintenance of the technical infrastructure and technical support

Lightweight level

- ***Hardware provision and server maintenance***

A server to run the Renardus Broker Service will have to be provided and maintained. This server could also contain the information section (cf. below under 'Tasks to be performed by the PR-Group': 'Maintenance of the service website'). A capacity planning strategy should be developed as part of this task. In a lightweight model it will not be feasible to guarantee 'round-the-clock' availability.

- ***Maintenance and running of CVS-system for Renardus distribution***

At the time of writing of this report the Renardus service is running at SUB Göttingen, at www.renardus.org. Netlab (Lund, Sweden) will maintain and run a CVS-system for Renardus distribution. Stable versions of the CVS are frozen and given a service number that can be checked by the official server in Göttingen. The server renardus.lub.lu.se will be maintained as a backup alternative.

- ***Software support/bug fixes***

The software underpinning Renardus will have to be supported and bug fixes developed in the case of malfunctioning.

- ***Update technical documentation and guidelines***

The technical documentation and guidelines have to be kept up to date and updated versions provided to the PR-Group to be made available via the appropriate channels. There should be a sufficiently detailed FAQ, which is updated when necessary.

- ***Support participating organisations with technical problems and questions***

The SPMG should support participating and new gateways with any technical problems or queries they may have. Clear procedures have to be developed to guarantee smooth and efficient support. Also a system to keep track of problems (current and solved) and solutions should be in place. It is assumed that the actual work to make and keep the local gateway available to Renardus is done by the local gateway. More extensive technical support whereby (part of) the actual work is done by the SPMG can be provided for a fee (see below, under 'extended level').

- ***Technical monitoring of availability***

During the project a toolkit has been developed, allowing constant monitoring of server quality and performance. Subject gateways that are consistently performing sub-standard should be contacted to discuss the problem and look for solutions. The SPMG will be responsible for monitoring quality and performance and for periodically reporting quality and performance data to the MG.

The verification reports recommends that the limits of a decentralised system are tested continuously: what happens when there are more gateways? Will it be necessary to restrict the number of gateways at some point? Solutions should be sought for problems arising from expansion.

- ***Establish user logs on Renardus server***

User logs should be established on the Renardus server. Periodically the data should be provided to the PR group to be analysed and the results reported to the MG.

Extended level

- ***Maintain mirrors of the service and/or information pages***

When the decision is made to maintain mirrors of the service and/or the information pages the SPMG will be responsible for the update procedures to ensure that the mirror(s) carry the same information.

- ***Procedures for technical assistance for Data Providers (new and old)***

The SPMG may provide technical support for Data Providers which want to participate in Renardus but are not capable of providing the necessary technical expertise and/or facilities themselves. This could be done for a fee, which could make this task a source of revenues for the Renardus Consortium (or for the organisation providing the assistance). Procedures will have to be in place to guide those activities. The MG and PR-group will play a role in drawing up agreements between Renardus and Data Providers about the exact nature of the technical assistance and the payment required.

The verification report states that experiences with the pilot show that co-operation between partners, for example in the use of servers has worked well. The MG should support this co-operation and try to extend it to other areas of activity. The report also suggests that Renardus form a register of experts in different fields so that data providers can buy expertise from each other.

- ***Analysis of search queries***

The Renardus server already collects the following statistics: access per domain, access per host and hourly/daily access. On the basis of these it is easy to analyse numbers of users and requests. It is more difficult to analyse search queries. These data are important because they would give insight in how Renardus is used. An action model and guidelines for analysis of search queries could be developed.

II. Innovation and Development

Lightweight level

- ***Short-cyclic innovation***

In a lightweight model, when no budget is available for major development work, short-cyclic innovation is essential to guarantee that the service continues to function properly and is adapted to changing requirements and new developments in the network environment. The required effort is hard to quantify, the best strategy would be to define a budget which would limit the amount of innovation and development work.

- ***Advise MG about technical developments***

The SPMG will have the necessary expertise to advise the MG on technical issues, for instance the importance for Renardus of emerging technologies, necessary technological development of the service, interesting opportunities for R&D projects, etc.

Extended level

- ***Major updates***

Major technical development will in most cases have to be covered by project funding. The SPMG will play an important role in spotting project opportunities, finding interesting technical partners, contributing to project proposals and carrying out actual R&D work once the necessary funding has been obtained.

III. Maintenance of the data model

Lightweight level

- ***Maintenance/updating of the Renardus Application Profile and Renardus Namespace***

The Renardus Application Profile (RENAP) forms the basis of the cross-search functionality of the Renardus service. It documents which elements are cross-searchable and in which way. Therefore the Renardus Application Profile should always reflect the current status. The updating of the Renardus Application Profile includes the updating of participating gateways' metadata format in relation to the common Renardus metadata format (RENAP). Each metadata element should be well defined semantically and syntactically. The RENAP will also be registered in well known registries such as the Dublin Core

Metadata Registry, the SCHEMAS registry and MetaForm. Each update of the Renardus datamodel will necessitate an update in those registries.

- **Maintenance/updating of the dataformat for the Collection Level Description**
Keeping their CLD up-to-date will be the responsibility of the individual subject gateways, but the SPMG will adapt the format when necessary - in line with international developments regarding collection level descriptions as well as with the requirements of the Renardus Broker Service. Also the SPMG will monitor the quality of the descriptions provided by individual gateways. There is also a need to make the CLD-tool more user-friendly.

Extended level

- **Gathering and incorporating information about the datamodel of new subject gateways**
When new subject gateways join Renardus they have to provide information about their datamodel. This information will have to be incorporated in the documentation on the Renardus datamodel. The SPMG may advise subject gateways on the required mapping of their datamodel to the Renardus datamodel or on adaptations of their own datamodel.
- **Provide and maintain guidelines**
Clear guidelines should be provided to help services with the mapping and normalisation process. Regarding the Collection Level Description especially the description field needs clear instructions to guarantee consistency between descriptions of services.

IV. Maintenance of the mapping information

Lightweight level

- **Availability and maintenance of the mapping tool (CarmenX)**
This comprises a.o. loading new classifications into the tool and adjusting of the format of local classification schemes to the mandatory CarmenX syntax. The local classification systems should be updated from time to time, as well as the DDC.

Extended level

- **Further development of the CarmenX tool**
Depending on further development of metadata sharing activities within the Renardus Consortium it may be necessary in future to develop the CarmenX tool to meet the (new) needs of the partners making use of this tool. Also it could be made a bit more user-friendly.

1.4 Tasks to be performed by the PR Group

During the life of the project, dissemination of information and promotion are the main responsibility of WP9, although all other project partners take part in dissemination and promotional activities by writing articles, giving papers, attending conferences, organising local events and so on.

If, after the project period, the service is to continue to operate, appropriate promotion and dissemination activities will be crucial even within a lightweight model to position the service and make it known to potential end users as well as to possible strategic partners, funding bodies, sponsors and so on.

Throughout the project lifetime, a range of promotional, dissemination and marketing materials and activities have been developed. Some of these will continue to be available to the post-project PR group, for example, a small stock of fliers, posters, Web-based resources, News Digest authoring tools and subscribers' list, archive of factsheets and other documents, templates, logos and stylesheets.

In this section the following tasks will be specified:

- I. Maintenance of the Information pages ('About us') on the service website and the restricted information pages
- II. Promotion and marketing of the service / dissemination
- III. User support/helpdesk (end user)
- IV. Support for Data Providers and potential new Data Providers
- V. Gathering of user feedback and statistics
- VI. Facilitate communication

I. Maintenance of the 'About us' pages and the restricted section of the information pages

In the last stages of the project the domain name www.renardus.org, which during the project had been used for the project website maintained at ILRT, has been transferred to SUB to be used for the Renardus Broker Service. Materials from the public website at ILRT and of the restricted partners' website at KB have been moved to the 'About us' pages and a new restricted section respectively. The restricted section also contains the internal project archive.

The public and restricted information sections will be hosted by SUB after the project. It may be decided to make available one or more mirrors. In this case an update procedure has to be in place to ensure that the mirror(s) carry the same information. This will be the responsibility of the SPMG.

The PR-group will carry final responsibility for the 'About us' pages and the restricted information pages. Where appropriate various organisations may have direct responsibility for maintaining certain sections of the website and will be given the necessary access rights to the server(s).

Lightweight level

- ***Maintenance of the content of the 'About us' pages and the restricted information pages***
The PR Group should be responsible for the continued availability of the information pages for the general public ('About us') and for Consortium members (restricted pages including internal project archive), although the possibilities for updating it would be limited in a lightweight model. Some minimum maintenance requirements should be decided on.
- ***Hardware provision and server maintenance***
When the information pages will be run on the same server as the actual Renardus Broker Service, no separate costs will be incurred: this task could be incorporated in the 'hardware provision and server maintenance' task of the SPMG (see above). When the information section is run by another organisation than the one running the actual service, or when mirrors are maintained, there will be additional costs for hardware.
- ***Registration of Renardus webpages with major search engines and targeted intermediaries and media***
The service's details could be submitted to search engines before the end of the project phase, and to targeted intermediaries (e.g. university and national libraries' Web masters or collection managers) who may point their own users at the service. This activity could be periodically repeated after the project, for new target services and individuals. An effort could be made to determine how target groups search for information and then publicise Renardus in the relevant media.

Extended level

- ***Further development of the website/information pages***
When funding is available the information pages on the website ('About us') and the restricted section may be extended with new sections and/or content, new management tools and or a new lay out.

II. Promotion and marketing of the service / dissemination

Target audiences

There are three main target audiences to whom the service will need to be promoted:

- a. Potential end users of the service
- b. Potential sponsors and strategic partners
- c. Potential participant services

End users and sponsors and strategic partners are probably the most crucial in the immediate post-project phase within a lightweight model. Potential participating gateways may need to be targeted through dissemination and promotional activity only if partners decide – and are able to facilitate – the continuing addition of new gateways to the service. The mechanisms described below apply particularly to *potential end users* and *intermediaries* (library and computing support staff).

Continuing maintenance of the Renardus information pages (the 'About us' section on the service website) would provide a key focus for dissemination and promotion under a lightweight service. The service's details could be submitted to search engines and to targeted intermediaries before the end of the project, supplemented with email postings and a limited amount of promotional material pointing to the Web sites. This pre-end project phase of promotional activity could ensure that Renardus' profile is maintained for at least 6-12 months. If additional funding then becomes available, a more comprehensive promotional campaign may be launched, using some or all of the mechanisms outlined under intermediate/extended levels, but on a potentially larger scale.

Lightweight level (end users)

- ***Users will be informed via the information pages of Renardus (see above)***

Lightweight level (potential sponsors and strategic partners)

- ***Participating services, ex-Renardians and Renardus Management Group to refer to the service in appropriate conference and journal papers and presentations***
It is likely that partners and ex-partners will continue to attend conferences and write papers which may have some relevance to the work undertaken in Renardus. Where appropriate, these papers could carry a reference to the continuing Renardus service. If still available, Renardus promotional materials could also be distributed at conferences and other events. However, such activity is likely to be fairly small scale.

Intermediate level (end users, potential strategic partners)

- ***Mailing list announcements***
Announcements are to be sent periodically (every 3-4 months) to relevant mailing lists across Europe. A set of email announcements appropriate to end users and potential strategic partners could be drawn up before the end of the project and appropriate lists identified for each. Periodic mailings would help to maintain the service's visibility amongst the various target audiences.
Before the end of the project, partners would need to identify appropriate lists and draw up the announcements. Participating services could agree to take responsibility for certain lists, thereby distributing the workload. It may be that some messages would have more impact if translated into local languages. This would require considerably greater effort and is unlikely to be possible within a lightweight service.
- ***Renardus promotional and reference materials to be made publicly available from the website***
The Renardus website should provide access to PDF files of Renardus posters, factsheets and brief user guides for end users and intermediaries to download for their own use. It would be useful if the template could easily be used for translations as well.

Extended level (end users)

If the service is able to attract development funding and offers new or updated features, a greater level of promotional activity may be appropriate.

- ***Design and production of new printed materials and their distribution across Europe***

Production of such materials (e.g. posters and fliers, or items such as pens or post-it notes), as well as their distribution, can be costly. For example, 2000 full-colour A4 sized posters cost approximately €983 to design and print. Postage (and envelopes/packaging) would be additional and depend on local costs. There would also be a human cost in arranging packing/distribution (e.g. a mailing company, temporary staff or an administrative post). There would also be a need for someone to take responsibility for commissioning and approving the design of any materials and to identify appropriate distribution targets.

It is cheaper to produce materials in larger numbers (ie the unit cost is lower). This may, however, have a 'hidden' cost in terms of storage. 2,000 Renardus folders take up a lot of space. Such space needs may potentially be absorbed within Consortium member organisations: if not, this would also be a cost. Materials could be distributed in conference delegate packs (this may sometimes be offered free, at other times for a small fee), although without a 'personal' presence the effectiveness of this is questionable.

- ***Face-to-face activities such as conferences, workshops and other events***

Face-to-face dissemination activity specifically for Renardus (rather than 'piggy-backing' on other events) can be very effective if appropriately targeted. However, it would be difficult to reach sufficient numbers of Renardus' potential end users (academics, researchers, and professional intermediaries across Europe). Conference or seminar activity could be targeted, e.g. subject-specific events or those organised by professional associations in each European country.

Extended level (potential participants, strategic partners, sponsors)

- ***Promotional activities aimed at potential sponsors***

Potential sponsors would need to be targeted, particularly if sustainability of Renardus is not able to be supported from existing sources (EU funding, Consortium member organisations), but also to provide for additional development of existing features, or provision of new functions in Renardus. Promotional material may also be sponsored by, for example, publishers, national organisations, conferences, and so on. The Consortium would need to identify likely sources for sponsorship or more comprehensive support. These could include funding bodies from governments, cross-European organisations, research councils or university associations.

During the project a number of 'bidbooks' have been produced, targeted at different audiences (subject gateways, library organisations, R&D organisations). This template could be reused and adapted in future but in the form of a glossy 'brochure' or 'prospectus' such material would be costly to produce in terms of design/layout and print.

It is unlikely that such material would be sent unsolicited without any follow-up: telephone or email contact would also need to be made with potential sponsors and partners, and some background research would also need to be undertaken to ensure that the target is an appropriate one and that the discussion is not completely 'cold'. The prospectus could also be provided online only – e.g. as a PDF for downloading, but particularly as a set of Web pages associated with the Renardus Web site.

- ***Promotional activities aimed at potential participating services***

Potential participating services would need to be aware of Renardus' profile regarding end users to highlight the importance of joining Renardus. They would also need to be aware of the requirements of joining the service. The Guidelines should be maintained on the service Web site – there may be technical support and editorial requirements to facilitate this - together with easily-accessible user statistics.

Renardus would need to be promoted in the areas where potential participants may be undertaking their own research and development: through government bodies, the EU's dissemination networks, research journals and Web sites, discussion lists for technical and metadata developments, international conferences and workshops. Participating data providers would need to agree whether Renardus requires additional partners in specific areas (subject or geographically based, for example) to balance the Renardus 'collection' and the service provided to users. Promotion may therefore need to be targeted only in specific countries or cross-Europe (or beyond) in particular subject communities and organisations.

There are unlikely to be large numbers of quality-controlled subject gateways that would be eligible to join Renardus, so the production of expensive promotional material in low print runs would not be efficient.

The use of conferences, journals and discussion lists, supplemented perhaps by promotional material designed for end users, would be most appropriate. If the human resource and intellectual capacity were available post-project, an annual seminar series, workshop or conference organised by Renardus could prove to be an effective way of attracting potential partners and also provide a forum for continuing technical and metadata development of the service.

- **Periodic production and distribution of News Digests**

These could be targeted at particular sections of the research and development community as well as those working in areas where strategic partnerships or sponsorship may be possible.

III. User support / helpdesk (end users)

User support/helpdesk activity has implications both for the Renardus service and for participating services. Gateways may receive more user queries because of the use of Renardus and vice versa. It would be very costly to provide full help desk facilities for end users. How to connect local help pages and Renardus help pages should also be considered.

Lightweight level

- **Help pages**
Provide basic help to the main functions of the service.
- **Link to relevant support links in individual Data Provider's pages**
Make it clear on the service's main and help pages that issues/problems may occur that are outside Renardus' control (e.g. due to individual gateways) and that links are provided to the individual gateways' help pages.

Intermediate level

- **Help pages**
Ensure availability of comprehensive and easy to use help pages in the service, including downloadable (PDF) brief user guides and FAQs that address common queries (based on evaluation feedback).
- **Offer email address for queries**
It should be made clear what users can expect from this within the limited resources available. A maximum time for responses should be set.
- **Develop standard response sets**
A set of standard responses could be developed depending on likely queries (SOSIG, for example, has developed a template for the most common queries received: staff can easily amend these when responding to user queries). The feedback received in the WP5 user evaluation could be used as input for FAQs as well as for standard response sets.
- **Helpdesk**
Ensure one or more people are available to respond to queries using standard responses wherever possible, including re-directing queries to participating services if appropriate.
We do not know how many users there will be, nor how difficult they will find it to use Renardus. Many queries received by, for example, SOSIG and Biz/ed in the UK, are not relevant to the service at all but are from individual students asking for help in writing essays, or finding information. We do not know how many queries will be associated with the use of Renardus or will stem from issues and problems with individual gateways.
- **Query collation and analysis**
Establish mechanisms for collating and analysing queries received over a 12 month period to facilitate planning for future help desk/user support activities.

Extended level

- **Helpdesk**

Employ one or more people to be responsible for responding to individual queries over and above those that can be accommodated with standard responses (e.g. cut down standard replies, get personal replies, and reduce response time).

IV. Support for data providers and support for potential new data providers

Lightweight level

- **Provide service documentation and FAQs for potential problems**

This documentation will be made available from the website (see above, under I. *Maintenance of the website Information Pages and Admin Section*). The documentation will be developed within the project. After the project some effort may be needed for updates and the provision/updating of FAQs.

- **Ensure Guidelines are up-to-date and accessible**

Guidelines for participant services will be developed in the project and made accessible via the website. After the project some effort may be needed for updating the guidelines.

- **Provide email contact within the management and/or technical group**

More difficult problems can be referred to the MG or SPMG (provide contact details of those). The verification report suggest to give a more extensive list of contact information about people involved in Renardus to make the service more 'personal'.

- **Maintain mailing list / discussion list**

A discussion list (closed, for providers only) could be provided for queries in self-help style and/or with mediator – or particular lists/contacts for different types of query.

Extended level

- **Tasks related to Application Procedure for new gateways**

The PR-Group will be responsible for the following tasks, specified in the '*Application Procedure for data providers*' (part of D3.3 and included in the *Guidelines for participant services*):

- Keep guidelines up to date (see below)
- Gather web application forms in special mailbox; send automatic confirmation to Data Provider
- Check web form, ask for additional information when necessary.
- Send on the completed application form to the Management Group
- Inform Data Provider of decision
- Publish inclusion of new service to user community

- **Keep Guidelines up to date**

Guidelines for Data Providers have been developed and published on the web during the project. Keeping those up-to-date could be quite time consuming if the service is changing/developing. If not, providing/adapting the guidelines would be a low cost task.

- **Provide News Digest type method for communicating changes**

E.g. a bulletin of updates, changes to requirements (links to technical support, strategic overview etc). Although not intended as 'promotional', but 'informational', News Digests for participating services could still be considerable in terms of effort if many changes are made to the service and/or its organisation. An average News Digest as currently issued takes approx. 2-3 days' effort for the editor, including requesting, collating and writing articles, writing and marking up any Digest Summaries available from the Web site and publishing. There would also be a cost in terms of maintaining the list of people to whom the Digest should be issued, although this would probably be part of the management tasks, in maintaining details of participating services.

- **Arrange annual event for providers to meet and exchange views on developments, issues, etc**

Delegates at the workshop for subject gateways, organised as part of WP9 in Copenhagen in November 2001, suggested Renardus organise an annual event of this kind. It would be an effective means of informing both partner gateways and emerging gateways of developments, promoting standardization and interoperability and providing a discussion platform for the subject gateways community. Extra funding will have to be available because such events could be costly. Costs - especially for delegates - could be reduced by 'piggy-backing' them on other events, like library conferences but still a lot of effort would have to be put into the organisation.

V. Gathering of user feedback and statistics

The gathering, analysis and presentation of user feedback and statistics may be crucial in attracting new participants, sponsors and strategic partners. Without this information, new partners or funders may be wary of investing time and money in the service. It is also vital for future developments of the service: what do users need in addition to the current features of the service? What can be improved or dropped?

Lightweight level

- ***Provide user feedback form on the Renardus service***

If a user feedback form is provided, a holding area for data received should be established as well, for later analysis.

NOTE: it should be made clear that this is not a query service and that information submitted in this way will not receive a response, it is not part of the helpdesk. If we feel that the risk of this is too great, it should be deferred until more effort is available for help desk/support activities (see above).

Intermediate level

- ***Analyse user logs on Renardus server***

Statistics that have been automatically collated by the SPMG can be analysed when effort is available to do so and recommendations made to the MG for service improvements and/or further evaluation activity.

- ***Analyse user feedback data from feedback form and feedback from gateways***

Provided that the feedback form data and gateway feedback data have been collected in an easily-readable format (e.g. comma delimited) for import into analysis packages, these can be analysed when effort is available to do so and recommendations made for service improvements and/or further evaluation activity.

Data analysis can be carried out with the help of tools and methods developed for the WP5 user evaluation (archiving script, Excel, SPSS), but the archiving method and analysis method need to be further developed.

Extended level

- ***Arrange user focus groups and evaluation workshops to gather feedback face-to-face and/or by telephone interview***

Face-to-face activities could be expensive if drawing users from across Europe, but less so if, as with the evaluation workshops held during the project, they are hosted locally in different countries, by participating organisations.

Focus groups would require little material preparation, but some development of areas for focus (based on analysis of logs/feedback above) or on plans for future developments. If new features are to be tested/evaluated, then the costs are likely to be similar to those for our evaluation workshops.

Telephone interviews are largely a cost in time (depends on number of interviewees, time taken to identify interviewees and their contact details, preliminary contacts, development of questions for interviews, actual length of interview). Over and above the effort costs, there would also be the cost of telephone calls, which could be expensive if cross-European. Again, this effort could be distributed amongst participating services.

VI. Communication

Lightweight level

- **Maintain mailing lists / discussion lists**

(Closed) discussion lists could be provided for various groups within/without the Renardus Consortium: Data Providers, potential future Data Providers, the Renardus Consortium as a whole, the three groups from the Renardus Core Organisation, etc.

Extended level

- **Assist Management Group in organisation of meetings**

The PR-Group could assist the MG in the organisation of meetings, for instance by making available materials (agenda, any documents that will be discussed etc.), sending out the invitation, arrange hotel bookings, negotiate with the host organisation about facilities and so on.

1.5 Tasks to be performed by the Data Providers

The requirements that services which are brokered to by the Renardus Broker Service have to comply with, are defined in *Technical requirements for participating organisations* (D2.2) and the *Organisational requirements and rules for participants and for inclusion of new participants* (D3.3). The information in these documents as well as relevant information from other workpackages (WP1, WP6) has been disseminated in an easily accessible and digestible form by WP9 as *Guidelines for participant services*. These are available from the 'About us' pages. The verification report also recommends that the experiences of current partners is made available in a more extended form for the benefit of new partners.

For the duration of the project the services that will be brokered to by the Renardus Broker Service are those that are defined in the scoping document (D6.2), and the Data Providers that are selected in the context of WP5 for testing of the extensibility of the service. D9.3 already identifies possible future partners. This overview should be maintained to have an up-to-date list of existing and emerging gateways. The verification report suggests to maintain a 'client-register' with services that may join and also the reason why they did or didn't join. This will help to facilitate the joining process and remove problematic points.

Data Providers that are not organisationally linked to project partners will have to apply for participation following the *Application Procedure for Data Providers*, which has been developed as part of D3.3 and has been published as part of the *Guidelines for participant services* via the 'about us' section of the website.

The services that are brokered to by Renardus are responsible for carrying out all activities necessary to comply with those interoperability requirements, guaranteeing availability of the service to the Renardus Broker and guaranteeing the required level of quality of their data in compliance with the general quality guidelines.

Tasks in the following areas will be discussed below:

I. Application and assessment procedure

II. Organisational and administrative tasks

III. Service Provision and Maintenance tasks

IV. Dissemination of information, concertation, promotion and support

I. Application and assessment procedure

To join Renardus Data Providers have to carry out the tasks specified in the *Application Procedure for Data providers*:

- Study the Guidelines for participating services and all relevant documentation

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- Complete the web based application form
 - Provide additional information when asked
 - Negotiate and sign agreement
 - Draw up planning and time schedule together with Renardus Consortium
 - Carry out planning according to specified checklist

Changes to the tasks specified in the Application Procedure may occur in the future, as a result of changes in the organisational model and/or business model of the Renardus Service

II. Organisational and Administrative tasks

- **Bring license policy in accordance with that of Renardus Consortium**
Individual Data Providers (as part of an organisation) or countries or other consortia may have their own negotiations and agreements with owners etc., e.g. national discussions with OCLC in Germany and UK. This may influence terms of agreements and/or costs for parties involved. There may be implications of new licenses negotiated by Renardus Consortium.
- **Obtain legal advice**
Data Providers may want to obtain legal advice for instance to assess the terms and conditions of participating in the Renardus Service.
- **Financial management**
In addition to the financial responsibility for the running of the local gateway, gateways will have to keep track of the costs and efforts (and possibly revenues) following from their participation in Renardus. The Renardus MG as well as external funding bodies may have their own requirements in terms of periodical reporting about effort and monies spent on the participation of the subject gateway in Renardus.
- **Communication**
Data Providers will have to put some effort in communicating with the Renardus Consortium. In a lightweight model this will probably include no more than subscription to the appropriate mailing list(s).
- **Attend meetings**
According to the current draft of the bylaws of the Renardus Consortium (see next section), consortium members (including data providers) would have to fund participation of their organisation in one general annual meeting of the Consortium.
- **Contribute to special tasks such as project proposal writing etc.**
Representatives of a gateway may temporarily take part in a working group to contribute to special tasks on the request of the Management Group.
- **Guaranteeing quality / compliance with Renardus quality guidelines**
Data Providers have to comply with the Renardus quality criteria for their metadata. They have to provide explicit quality criteria and have to monitor the quality of their data. Also the quality of the data provided to Renardus after running the normalisation scripts should comply with the Renardus quality requirements.
- **Reporting to Renardus management**
Depending on the procedures for reporting established by the Management Group, the gateway may need to contribute to periodic reporting. This effort will be minimal in a lightweight model but may increase in the case of business models including commercial partners or funding bodies which will require periodical account of activities.

III. Service provision and Maintenance tasks

- **Hardware provision**
Gateways would have to provide and maintain the necessary hardware to run their Renardus Z-servers.

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- ***Guaranteeing availability of the gateway to the Renardus broker***
This includes: maintenance of the Renardus Z-server and periodically running of the normalisation scripts.
 - ***Maintenance/updating of DDC mapping***
The Data Providers will have to keep the mappings between their own classification schemes and the DDC up to date. This will necessitate periodical revision and updating of the mapping. Gateways using the same classification scheme could work together to diminish effort and make sure they use the same mapping.
 - ***Maintenance of Collection Level Description***
The Data Providers need to keep their Collection Level Description up to date by revising it periodically, to make sure it reflects the current state of the gateway.
 - ***Upgrades of software and/or procedures***
Changes in software and or procedures may necessitate efforts by the Data Providers to adapt by installing new software, adapt their workflow, etc.

IV. Dissemination of information, concertation, promotion and support

- ***Helpdesk***
Renardus subject gateways would not be required to run a separate Renardus helpdesk, but their own local helpdesk and support may demand more effort because of a larger user base.
- ***Logo and links from participating services to Renardus***
Participating gateways should provide the logo of and a link to Renardus in their own pages.
- ***Participating services to refer to Renardus within own promotional and dissemination activities and materials***
It is unlikely that participating services will want to invest in printed material using the logo unless continuation and quality of the service can be guaranteed. They could, however, make reference to Renardus in articles, newsletter, e-mailings to their user communities and so on and ‘piggyback’ Renardus PR on the promotional work services are undertaking in their own right to attract users to their sites.

2 THE RENARDUS MEMBERSHIP CONSORTIUM

At the time of finalising this document (the last week of the project) the most viable option to formalise the collaboration regarding exploitation and maintenance of the Renardus Broker Service still seems to be the establishment of a Membership Consortium, with as its main objective the exploitation of the Renardus Broker Service. Although after the project the Management Group will continue its activities to obtain funding for continuation of service provision and maintenance as well as for further development of the service, the model outlined here is based on the assumption that no structural or project funding will be available.

This section will describe the structure of the Renardus Consortium in a formalised way, in the form of bylaws.

The assumption that no structural or project funding will be available, leads to a number of requirements for the Renardus Consortium. To reduce overhead and travel costs, the Consortium management should not be top-heavy, so day-to-day management should be carried out by a small number of people. To be able to act decisively the decision making processes should be transparent and clearly structured, so the rights of the participants are guaranteed without obstructing the Consortium in its dealings and decision making.

A minimum investment of staff effort and/or money (e.g. for travel) will be required from participants to allow for the functioning of the Consortium on a basic level. The main task of the Consortium management in a situation where no structural or project funding is available yet, is to explore opportunities for project involvement and for obtaining structural funding.

To develop the structure of the Renardus Consortium we studied a number of examples of comparable Consortia in the library world.¹ Because of the lack of suitable supra-national, European-wide organisations which could take responsibility for services based on European collaboration, as well as the reluctance of national funding bodies to contribute funding to such collaborative efforts, it is difficult to establish an organisational body that can operate authoritatively and decisively as a player in this field. Both the lack of funding and the complicated decision making process will tend to diminish its effectiveness and the service runs the risk of becoming obsolete. The alternative of co-operation with commercial parties will have to be explored further by the management of the Consortium, but there are a number of pitfalls in this area, such as loss of control over the service, incompatibility of the ambitions of the commercial companies and those of the participating gateways, and the possible loss of public funding which will not be obtainable for commercial ventures.

2.1 Proposal for bylaws of the Renardus Consortium

This section proposes bylaws for the Renardus Consortium. The bylaws describe the formal structure of the Consortium, its objectives, the rules for membership, its governance and the rules relating to amendment of the bylaws or dissolution of the Consortium.

The Renardus Consortium Agreement (including the Data Provider Agreement annex) will be based on / incorporate those bylaws. (NB: *This is still work in progress at the time this deliverable is finalised. The structure of the Consortium, the Consortium Agreement and the bylaws are to be discussed at the final project meeting in Paris, 27/28 June 2002 - further developments fall outside the scope of the project*).

Renardus Consortium Bylaws (proposal)

Article 1: Name

The name of the organisation is the Renardus Consortium.

Article 2: Organisation

The Renardus Consortium is a nonprofit membership organisation.

Article 3: Objectives

The main objective of the Renardus Consortium is the exploitation of the Renardus Broker Service as an enduser service made available on the internet. This means safeguarding the basic conditions for continued service provision and maintenance and exploring and engaging in opportunities for further development of the service.

Other collaborative activities may be carried out by the Renardus Consortium member organisations e.g. in the area of metadata sharing. The conditions for these activities will be discussed separately and may lead to additions and amendments to these Bylaws and/or the Consortium Agreement.

Article 4: Membership of the Renardus Consortium

4.1 Eligibility

Membership of the Renardus Consortium is open to any organisation which is able and willing to commit itself to contributing to the exploitation of the Renardus Broker Service as described under article 3. Those contributions can be in one or more of the following areas:

- ◆ Data provision (making metadata of one or more local services available via the Renardus Broker Service)
- ◆ Contribution to Management tasks
- ◆ Contribution to Service Provision and Maintenance tasks or development tasks (technical expertise)
- ◆ Contribution to PR-tasks

4.2 Obligations of the member organisations

The participating organisations will have to be willing and able to contribute a minimum of staff effort, equipment and/or money to the exploitation of the service. The minimum requirements will differ for each type of organisation, depending on the kind of contribution(s) the organisation makes to the service, e.g. data provision, technical development work, etc. The minimum requirements for each organisation will be specified by the Management Group and will be described in the Agreement signed by Consortium members.

4.3 Membership fee

No membership fee is required.

4.4 Rights and privileges

Each participating organisation will have the right to make available the Renardus Broker Service to its own user group.

Each participating organisation has the right to vote about the membership of the Management Group.

Each participating organisation has the right to nominate members of their organisation as representatives within the Management Group, the Service Provision and Maintenance Group and the PR-Group.

4.5 Membership application and approval

Organisations that want to become a member of the Renardus Consortium will have to apply for membership following the procedure outlined in the *Guidelines for participant services*, available via the Renardus information pages.

The Management Group will check if the organisation is able and willing to meet the requirements for membership. They will submit a recommendation for acceptance or rejection of the application to the members of the Consortium. The application will be subject to voting as specified in article 7.

4.6 Termination of membership

Membership organisations can terminate their participation in the Renardus Consortium at any moment by writing a letter to the Management Group.

The Consortium can decide to terminate its collaboration with a member organisation when this organisation does not meet the minimum requirements for participation over a longer period of time.

Collaboration with Data Providers may be ended when the quality of the data provided does not meet the required standards over a longer period of time.

The decision to terminate collaboration with one of the membership organisations will only be taken after discussion of the problems with the organisation. Organisations will be granted a certain amount of time to solve any problems that may occur. This is left to the judgement of the Management Group. The Management Group may recommend termination of collaboration with one of the membership organisations to the Consortium in which case the rules for voting will be followed as specified in Article 7.

Article 5: Governance

The day-to-day management of the Renardus Consortium will be the responsibility of the Management Group.

The Management Group will consist of a minimum of 3 people and a maximum of 12 people.

The Management Group will consist of staff of the member organisations of the Renardus Consortium.

The Management Group will develop a procedure for deciding on the membership of the Service Provision and Maintenance Group and the PR-Group.

The Management Group will be in office for one year. During the Annual Meeting the membership of the group for the next year will be voted on.

There is no limit to the number of times an individual can be voted into the Management Group.

The Management Group should always have at least one member of the organisation which at that moment hosts the service.

Article 6: Documents

A Consortium Agreement will outline the terms and conditions of membership for all organisations and will be signed by all members of the Renardus Consortium.

A Data Provider Annex will outline the specific rights and obligations of data providers which will make their metadata available via the Renardus Broker Service.

Data Providers will have to sign both the Consortium Agreement and the Data Provider Annex.

Article 7: Decision making process

All decisions that go beyond the day-to-day management and/or which will affect the functioning of the consortium (e.g. membership, decision making process) or the Renardus Broker Service itself (interface changes, metadata model), as well as decisions regarding strategies and policies (collaboration with third parties, sponsorship, funding, project involvement), will be made by all members of the Renardus Consortium.

Decisions will be accepted when they are supported by two thirds of the membership organisations. (*Alternative proposed by DDB: to differentiate between important decisions, which need a two third majority, and less important issues which only need a 50% majority*).

No decisions will be accepted against a majority of Member Organisations of the Renardus Consortium which were official participants in the EU-funded Renardus Project (2000-2002).

No decisions will be accepted against a majority of Data Providers which have signed the Data Provider Annex.

Two thirds of the member organisations shall constitute a quorum for the transaction of business at the Annual Meeting.

Article 8: Meetings

In a lightweight model, where no external funding is available, one Annual Meeting will be organised by the Management Group, which will be attended by at least one representative of all membership organisations of the Renardus Consortium.

The membership organisations will provide the costs for travel and subsistence for the representative(s) of their organisation.

Membership organisations will in turn host the Annual Meeting. The costs of facilities will be provided by the host organisation.

During this Annual Meeting the membership of the Management Group will be voted on for the next period of one year.

In case of pressing issues an extra meeting may be organised. This may be proposed by any Consortium Member and will take place when the proposal is supported by at least 50% of the Consortium Members.

Article 9: Dissolution

The Renardus Consortium will be dissolved where the exploitation of the Renardus Broker Service and other collaborative activities taking place by member organisations have come to an end and no collaborative efforts are foreseen for the near future.

The members of the Renardus Consortium may vote to dissolve the organisation at the Annual Meeting

Article 10: Amendments

These Bylaws may be altered or amended by a two-thirds vote of the membership organisations.

Voting will take place at the Annual Meeting.

The Management Group will inform all membership organisations of any proposals for amendments and alterations at least a month before the Annual Meeting.

All membership organisations can submit proposals for amendments or alterations to the Management Group.

Article 11: Effective date

These Bylaws will take effect after the end of the project, but only after formal adoption by the Management Group and the member organisations and at the earliest on 1 July 2002. The Management Group may decide to amend the bylaws before adopting them. The proposed changes will have to be approved by all Consortium Members before these bylaws can take effect.

2.2 Cost model

2.2.1 Costs

The organisational model is based on the existence of a Renardus Core Organisation, consisting of groups for management, service provision and maintenance and PR. The other main units of the model are Data Providers who will be responsible for complying with various technical and organisational requirements, as defined in Renardus project deliverables D2.2 and D3.3. Meeting the costs of complying with these requirements will be the responsibility of data providers themselves and will not form part of the cost model described here.

The remaining costs are divided between the management, service provision and maintenance and PR groups. It is assumed that in the short term there will be no structural or project funding, that the management structure will be small and that consortium members will be prepared to invest their own time and money in helping the work of the consortium. The main costs will be funding participation in the Management Group and in running the Renardus service. In the longer-term, it will be necessary to investigate how the management and PR function of Renardus should be more permanently funded.

In the short term, the highest level of expenditure is likely to be staff costs. In order to provide a basic service, it has been estimated that the staffing required for the pilot (including the integration of some new services) together with support for associated systems and tools would total 0.5 FTE *per annum*. This would include a 0.25 FTE technical post, for server maintenance, the integration of new services and technical support. It would also include a 0.25 FTE information specialist who would provide support for participating services on mapping data structures to the Renardus data model and classification mapping. The costs of providing 0.5 FTE would vary depending upon which EU Member State the Renardus service was based and the level of overhead included, but may be assumed to between €25.000 and €40.000 per year. An additional €1.500 per year would need to be allocated for backup media costs and in the longer-term the cost of a replacement server would need to be also factored in.

Other potential costs that need to be considered are the costs of the various licences that Renardus needs to function well, chiefly for the use of software (from Index Data and the University of Regensburg) and the DDC (from OCLC Forest Press). The project has already negotiated the use of DDC on a research licence beyond the end of the project phase of Renardus, but future developments may require negotiation on commercial terms. There may also be legal costs associated with negotiating these licenses on behalf of the Renardus consortium.

Other management costs are harder to quantify. In addition to the costs of the activities identified in previous sections, there may be a need for legal advice in drawing up a consortium agreement. Such agreements typically have information on members' rights, obligations and liabilities, on organisation and meeting procedure, etc. The consortium would have to be established under the legal system of one of the EU Member States, and this process could be a lengthy one.

2.2.2 Revenues

Potential sources of revenue are identified and described in the next section of this report. Almost all of them could be used to support Renardus as a membership consortium. However, the most likely sources of revenue would be a combination of sponsorship, selling niche services and looking for further research and development funding. The existing management consortium scenario does not envisage a membership fee, although this could be reconsidered at a later stage or for new consortium members or data providers.

3 SUSTAINABILITY OF A EUROPEAN BROKER SERVICE: PROBLEMS AND CHALLENGES

3.1 Introduction

Very little has been published on the longer-term sustainability of subject gateways and the services like Renardus that broker access to them. Economic studies of digital libraries often concentrate on the economics of scholarly publishing, specifically on the provision of electronic journals and e-print archives (e.g. Odlyzko²). Halliday and Oppenheim³ (p.20) note the lack of work on the economics of subject gateways and suggest that in some cases their development has been undertaken by commercial or quasi-commercial organisations that want to attract users to their Web sites in order to promote other products or services. This is not the case with the quality-controlled subject gateways that make up Renardus.

The only detailed economic studies of subject gateways are those undertaken for the JISC prior to the setting up of the RDN. A report from Haynes, *et al.* (1998)⁴ evaluated three different models for the transition from project to service status. The models had varying amounts of public funding. The first model was 100% funded by the JISC; the second based on migrating the eLib gateways to a service that could be funded 50:50 between the JISC and other sponsors; the third requiring gateways to find their own funding streams. The report recommended the adoption of the second model, with gateways seeking matched funding after a relatively short transition period (18 months). Haynes *et al.* were optimistic about the prospects for commercialisation of the UK gateways; gateways had already considered the sale of records, charging subscriptions for access to closed

areas of the site, and the inclusion of advertising. The metadata sharing option struck the authors as being useful, bearing in mind the relatively high cost of records. They said that their "initial work on the costs of cataloguing suggests that there could be considerable savings to individual HE institutions if they were able to buy records from the SBG providers."

The economic analysis of Haynes, *et al.* was followed-up in a later report by Halliday & Oppenheim (1999). They made an estimate of staff costs (including overheads) for a network of eight gateways (hubs) with a centre. The role of the centre is similar to but not identical to the Renardus Consortium. The centre's budget is given four outgoing flows and one incoming one (Halliday & Oppenheim, p. 53).

The outgoing flows represent RDN staff costs, RDN infrastructure costs, hub income, and Managing Director salary and bonuses. The incoming flow represents RDN funds and is informed by two converters: non-grant funds and JISC funds. The former consists of HE [higher education] subscription income and of sponsorship and the latter consists of JISC start-up funds plus ... [an] ongoing allowance as described by Haynes et al.

It is interesting that this model assumes that at some stage higher education institutions might be prepared to pay a subscription to give their users access to a network of subject gateways. Halliday and Oppenheim (1999, p. 56) consider this a viable income source, but note that if restricted to the UK higher education community, this source will be limited. Sponsorship is seen as the major other support for the business model.

It is worth stressing that the Renardus context is not identical to the situation described in the reports by Haynes, *et al.* and Halliday & Oppenheim. It will not be the main role of the Renardus Consortium to distribute money to consortium members or Data Providers, as their own business models will sustain these. Any surplus income would be invested in improving the Renardus Service. The main output flows would go to fund the provision of the Renardus Service itself and to fund the activity of the management and PR groups. The precise level of this would depend upon the possible revenue streams that Renardus would be able to achieve.

On the other hand, if in the future revenue streams will actually be greater than costs for maintenance and development the participating gateways (and their funding bodies) may want some revenue from Renardus feed back to the participating gateway. Such a 'stakeholder payback model' could be considered in that case. Another model which would give the gateways some additional benefit from their participation in Renardus would be for the Consortium members to bid jointly for funding, e.g. from the EC, for development work that benefits individual gateways as well as the Renardus service.

3.2 Potential revenue streams

We know something about the potential short-term costs of the consortium model and must now look at some of the options for funding this and to highlight their advantages and disadvantages. In practice, it is likely that different revenue streams will co-exist with each other. The most successful revenue streams are likely to be sponsorship, continued public funding or some kind of membership fee. It may also be possible to sell certain Renardus services on a one-off or subscription basis.

Sponsorship

One way of funding the work of the Renardus consortium would be some kind of external sponsorship. This could be by organisations of a commercial (e.g. publishers, booksellers, etc.) or non-commercial (e.g., library consortia, national libraries, etc.) nature. It would be necessary to first identify a potential sponsor and then attempt to persuade them that supporting the Renardus Service would be in their interest. The sponsors could themselves become formal members of the coalition.

Public funding

It is possible that public funding could directly support some aspects of the Renardus Service. For example, further development and enhancement of the service could be undertaken as part of research and development projects funded by the funding bodies of EU Member States and the European Union. The Renardus Management Group will have to be aware of and respond to funding opportunities when they arise or may have to co-operate with consortium members, when national sources of funding might be available.

Membership fees

Many (if not most) consortia will have some kind of income from their members. This is usually received in the form of an organisational or individual subscription. For example, membership of the TEI Consortium (a standards-making organisation) in March 2002 cost between US\$100 (ca. €105) and US\$5,000 (ca. €5,400), depending on organisation size and geographical location (<http://www.tei-c.org/>).

The level of membership fee that could be generated by the Renardus consortium would need to take into account the fact that Data Providers will already have made considerable efforts to comply with the technical and organisational requirements. They will also have their own gateway costs to cover and their own business models mean that they are unlikely to have spare financial capacity. Assuming that there are ten Data Providers or consortium members, a contribution of €3,000 *per annum* would go some way towards paying for the basic service. In the short term, however, it is unlikely that Data Providers or other consortium members would be prepared to pay this (or any) level of subscription. An alternative approach would be to charge new Data Providers and consortium members for belonging to Renardus. This is likely, however, to become a disincentive for new members to join the Renardus Consortium. It may be possible, however, to make a one-off charge for providing support (technical and other) to new Data Providers that want to join the Renardus Service. This is discussed in more detail in the next section.

Payment for services provided by the consortium

The Renardus Consortium could also attempt to charge for providing some services. For example, it could offer support to new Data Providers with regard to reviewing metadata structures, setting up normalised Z-targets and helping with the classification mapping process. This would give new Data Providers a choice whether to undertake these processes themselves or to pay the Renardus Consortium to do them on their behalf. Another possible scenario would be the licensing of the use of the Renardus cross-search/browse software in non-subject gateway contexts.

3.3 Alternative sources of support

It is possible that there might be other potential sources of financial support for the Renardus Consortium and Service. These are less likely to be successful, at least in the short term, but are included here for completeness.

Advertising

Advertising is one of the most popular business models on the Internet and is used, for example, to support many of the popular Internet search services, e.g. AltaVista, Lycos and Yahoo! Some Web-sites gain advertising revenue through agencies like DoubleClick, Inc. (<http://www.doubleclick.com/us/>) but sites who want to use these will need to generate a very high level of traffic, e.g. Neal & Kerr⁵ (p. 4) note that DoubleClick require a minimum of one million page views per month. There is some evidence that the Internet crash has had an adverse impact on business models completely based on advertising (e.g. Lambeth⁶). In any case, some national network acceptable-use policies specifically exclude the adoption of the advertising model. For example, the policy devised by the JISC Committee for Networking expressly forbids the "transmission of unsolicited commercial or advertising material" on JANET (Kelly⁷, p. 32). Some sites, however, do manage to carry some discreet advertising. For example, the RDN hub EEVL has some supporters' logos on its home page and a note that a specialised software house sponsors the Web-site. The University of London Library Web page (<http://www.ull.ac.uk/>) has a logo and link to a well-known international bookshop chain. The UK e-journal *Internet Archaeology* (<http://intarch.ac.uk/>), initially funded as a JISC research project, is soliciting advertisements from "commercial, not-for-profit and academic institutions," assuming that their content is of relevance to readers of the journal (<http://intarch.ac.uk/advert/>). Outside of the higher education sector, the interface of the British Library Public Catalogue contains the logo of its 'sponsor,' the UK branch of a major Internet bookseller (<http://blpc.bl.uk/>).

One problem with advertising is its perception. The editor of *Internet Archaeology* has written that there is a perception that "advert-rich sites are associated with free content, free web-hosting, and low quality" (Winters⁸). With Internet search services like Renardus, it may be considered that advertising could 'contaminate' end-users' faith in the objectivity of the resource descriptions and search ranking algorithms. Advertising would not be an ideal single business model for Renardus, unless it was part of a broader funding strategy.

Affiliate schemes

Affiliate schemes are based on the idea of rewarding Web-sites (affiliates) for generating links to other Web-sites. They are typically run by commercial organisations, e.g. booksellers like Amazon or Barnes & Noble. Affiliates link to the target organisation's Web-site and are paid a small commission or fee when a user visits, registers personal details or purchases an item from that link. Kirriemuir⁹ has noted some disadvantages of affiliate schemes, including concerns about endorsement and liability; he also notes that in many cases they generate very low revenues (p. 277).

Affiliate schemes are a viable business model for some specialised commercial organisations. The 'shopping comparison portal' Kelkoo generates 60% of its revenues from fees received for leads sent to e-tailers, who pay a combination of fixed or transaction based fees to optimise their visibility on the Kelkoo Web-site (<http://uk.kelkoo.com/content/content.jsp?url=/content/general/corpinf.html>).

Subscription - charging users for Renardus Services

Another business model that could be used to support the Renardus Service would be to charge directly for access. This would mean the end of completely free access to the Renardus Service, even if it applied only to some 'value-added' services. This would not necessarily mean that end-users would be charged per-search or a monthly subscription, but that intermediaries (e.g. higher education libraries, research institutes, etc.) would need to negotiate a licence that would give access to their users. This would require more work on authentication and IP recognition systems, and the development of new 'value-added' services based on the existing Renardus collaboration. At the present time, the Renardus Service is not developed enough to adopt this business model.

3.4 Costs

Whichever portfolio of revenue streams is eventually used, ensuring the sustainability of the Renardus Service will depend on balancing revenue against costs. Costs are variable, depending upon which level of service is offered, but will largely comprise staff costs. The lightweight model will need to fund the basic costs of the service provision and maintenance group, but may not provide much support for the management and PR groups. It is assumed that in the short term there will be no structural or project funding, that the management structure will be small and that consortium members will be prepared to invest their own time and money in helping the work of the consortium. In the longer term, this kind of effort may not be able to sustain a growing service and the funding issue will have to be considered in more detail by the management group.

3.5 Legal issues

The Renardus Service is in part based on the use of software developed by Index Data and the University of Regensburg; the cross-browse part is based on the DDC, currently licensed from OCLC Forest Press. It is possible that Renardus Consortium will have to extend the duration of any licences and pay for them. There may be a need for the consortium to pay for legal advice, although some consortium members may have access to 'in-house' legal expertise.

Legal expertise may also be required in the setting up of a consortium agreement and for agreements with data providers. These will have to be subject to the legal system in one particular EU Member State (e.g. the Netherlands or UK) and will need to include information on members' rights, potential liabilities and things like income generation. An additional complication is the fact that some consortium members or data providers may not exist as a legal entity in their own right and that such agreements would have to be signed by representatives of host institutions.

3.6 Examples of former projects that now follow a consortium model

There are examples of projects that have attempted to make a transition from research and development funding to more sustainable business models. Sometimes this is achieved by commercial support for a project output, e.g. the 'iPort' broker marketed by OCLC PICA, but developed from software developed by the DECOMATE II project (<http://www.oclc-pica.org/?id=106&ln=uk>). Other projects have evolved into more stable membership-based organisations. The experiences of some of these projects show the importance of the development of a good organisational structure, usually with some agreed statutes. Unlike the consortium model proposed for Renardus, the two organisations described in this section collect annual subscriptions from members and use the fees collected to, e.g. "implement the decisions of the General Meeting and to cover the overheads of the

Association " (ARIADNE Foundation). In some cases, there is also the opportunity for additional financial sponsorship. In return for members' fees and sponsorship, organisations in return need to provide access to privileged information, events or opportunities for training.

The ARIADNE Foundation

ARIADNE was a research and development project funded by the European Union (under the Telematics for Education and Training sector of the 4th Framework Programme) and the Swiss Federal Office for Education and Science (OFES). The project was funded in two phases from January 1996 to June 2000 and was focused on the development of tools and methodologies for "producing, managing and reusing computer-based pedagogical elements and telematics supported training curricula." At the end of the project, an "ARIADNE Foundation for the European Knowledge Pool" was created to exploit and further develop the results of the projects. The ARIADNE Foundation is a not-for-profit association that endorses the following (<http://www.ariadne-eu.org/>):

- ◆ Foster co-operation between educational bodies through the set-up and exploitation of a truly European Knowledge Pool;
- ◆ Keep social and citizenship aspects dominating Education, combat an evolution towards making it a mere marketable item;
- ◆ Uphold and protect multilinguality and the use of national/regional languages in education;
- ◆ Define by international consensus what aspects of ICT-based formation should be standardised and what should be left local.

The ARIADNE Foundation has an Executive Board and its head office is hosted by the Swiss Federal Institute of Technology, Lausanne (EPFL). The Foundation has distributed Centres for Development and Support (CDS) based at the Katholieke Universiteit Leuven (Belgium), the University of Lausanne (Switzerland), the Université Joseph Fourier in Grenoble and the Université Paul Sabatier-Toulouse III (both France). Membership is open to both institutions and individuals and annual subscription costs (as of January 2000) vary between €50 (for an individual member) and €50,000 (for private corporations with over 10,000 employees and a turnover of more than €100,000). The Foundation has published draft statutes that provide authoritative information on members' rights, obligations and liabilities, on organisation and meeting procedure, etc. (http://www.ariadne-eu.org/1_AF/1.4_Statutes/main.html). More information can be found on the ARIADNE Foundation's Web pages at: <http://www.ariadne-eu.org/>

The TEI Consortium

The Text Encoding Initiative (TEI) began as an initiative of three scholarly societies (the Association for Computers and the Humanities, the Association for Computational Linguistics and the Association for Literary and Linguistic Computing). It was funded by research grants from the US National Endowment for the Humanities, the European Union, the Canadian Social Science Research Council, the Andrew W. Mellon Foundation and others. Its main focus is on standards development, most notably SGML and XML-based encoding schemes for literary and linguistic texts that can be used for teaching and research. In 2000, a non-profit body called the TEI Consortium was set up to maintain and develop the TEI standard¹⁰. The consortium is hosted by four universities: the University of Bergen (Norway), Brown University (USA), the University of Oxford (UK) and the University of Virginia (USA). It is managed by a Board of Directors, and technical work is overseen by an elected Council. Information on membership, charter and bylaws can be found on the TEI Consortium Web pages: <http://www.tei-c.org/>

The TEI Consortium has three categories of participation: voting membership (open to individuals, companies, institutions or projects), non-voting subscription (open to individuals only) and sponsorship (open to individual or corporate sponsors). Membership costs are currently (March 2002) between US\$100 and US\$5,000 (depending on organisation size and geographical location) and are decided on by the Board of Directors. Member benefits include access to information on a restricted access Web site, preference in scheduling on-site training, workshops, seminars, summer schools, project consulting and start-up, etc., certification of training courses, representation at an annual executive briefing. Individual subscriptions are currently (March 2002) US\$50. More information can be found in the TEI Consortium *Membership Prospectus* (<http://www.tei-c.org/Consortium/memship.html>).

PART IV - REMAINDER

4 REFERENCES

¹ Library Consortia Documents Online: (<http://www.lis.uiuc.edu/~b-sloan/consort.html>) is a useful overview although not all the links are working any more. Further examples are: CERL (<http://www.cerl.org/cerljoin.htm>), DDC Deutsch, Ariadne and TEI (the latter two discussed in section 3).

² Odlyzko, A. (1998). The economics of electronic publishing. *Journal of Electronic Publishing*, 4 (1). <http://www.press.umich.edu/jep/04-01/odlyzko.html>

³ Halliday, L. & Oppenheim, C. (1999). *Economic models for the digital library*. London: South Bank University, Library Information Technology Centre.

⁴ Haynes, D., Streatfield, D., Cookman, N. & Wood, H. (1998). *Comparative evaluation of the subject based gateways approach to providing access to network resources: a report to JISC under the eLib Supporting Studies Programme*. <http://www.ukoln.ac.uk/services/elib/papers/tavistock/subject-gateway-access/>

⁵ Neal, K. & Kerr, M. (2001). E-commerce and the librarian. *VINE*, 120, 3-5.

⁶ Lambeth, J. (2001). Microsoft puts Hotmail on the fee way. *Daily Telegraph*, 1 November.

⁷ Kelly, B. (2001). Advertising on the network. *VINE*, 120, 28-34.

⁸ Winters, J. (2001). Editorial: the cost of advertising. *Internet Archaeology*, 10. <http://intarch.ac.uk/journal/issue10/editorial.html>

⁹ Kirriemuir, J. (2001). Web-based affiliate schemes. *The New Review of Information Networking*, 7, 273-281.

¹⁰ Burnard, L. (2000). Text Encoding for Interchange: a new Consortium. *Ariadne*, 24, June. <http://www.ariadne.ac.uk/issue24/tei/intro.html>